

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (withdrawn): A titanium oxide structure having an optical band gap (hereinafter referred to as "BG") of 2.7 to 3.1 eV as calculated from absorbance measured by an integrating sphere-type spectrophotometer and having a tap density of 0.15 to 0.45 g/cm³.

2. (currently amended): A metal oxide structure obtained by dry-mixing a plurality of metal oxide powder particles differing in the particle size, wherein ~~when assuming that an~~ optical band gap (hereinafter referred to as "BG") of raw material metal oxide is BG0 and the BG of metal oxide after the dry mixing is BG1, the (BG0 - BG1) is from 0.01 to 0.45 eV,

wherein the raw material metal oxide comprises a metal oxide powder having an average primary particle size of 100 to 500 nm (hereinafter referred to as Particle Group A) and a metal oxide powder having an average primary particle size of 10 to 40 nm (hereinafter referred to as Particle Group B), the particle sizes being as converted from the specific surface area determined by the BET method, the blending ratio of Particle Group A and Particle Group B being from 5/95 to 30/70.

3. (currently amended): A method for producing a metal oxide structure, comprising dry-mixing a metal oxide, wherein ~~when assuming that an~~ optical band gap (hereinafter referred

to as "BG") of raw material metal oxide is BG0 and the BG of metal oxide after the dry mixing is BG1, the mixing is performed to give a (BG0 - BG1) of 0.01 to 0.45 eV,

wherein the raw material metal oxide comprises a metal oxide powder having an average primary particle size of 100 to 500 nm (hereinafter referred to as Particle Group A) and a metal oxide powder having an average primary particle size of 10 to 40 nm (hereinafter referred to as Particle Group B), the particle sizes being as converted from the specific surface area determined by the BET method, the blending ratio of Particle Group A and particle Group B being from 5/95 to 30/70, and

wherein the dry mixing is performed by a ball mill and when the total mass of powder particles mixed is wp (g), the mass of medium is wm (g), the inner diameter of ball mill container is d (m), the rotation number is n (rpm) and the mixing time is t (minute), the energy constant k1 at the dry mixing represented by the following relationship:

$$\underline{k1 = wm/wp \times d \times n \times t}$$

is from 3,000 to 250,000.

4. to 8. (canceled).

9. (currently amended): The method for producing a metal oxide structure as claimed in claim 38, wherein Particle Group B is a mixture of a metal oxide powder having an average primary particle size of 20 to 40 nm (hereinafter referred to as Particle Group C) and a metal oxide powder having an average primary particle size of 10 to 20 nm (hereinafter referred to as Particle Group D), the particle sizes being as converted from the specific surface area determined by the BET method.

10. (currently amended): The method for producing a metal oxide structure as claimed in claim ~~38~~⁸ or 9, wherein the average specific surface area of Particle Group B is from 60 to 110 m²/g.

11. (currently amended): The method for producing a metal oxide structure as claimed in claim 3 ~~any one of claims 8 to 10~~, wherein at least one of Particle Groups A to D is a metal oxide synthesized by a gas phase process.

12. (currently amended): The method for producing a metal oxide structure as claimed in claim 3 ~~any one of claims 3 to 11~~, wherein the tap density is from 0.15 to 1.0 g/cm³.

13. (currently amended): The method for producing a metal oxide structure as claimed in claim 3 ~~any one of claims 3 to 12~~, wherein the metal oxide is titanium oxide.

14. (currently amended): The method for producing a metal oxide structure as claimed in claim 3 ~~any one of claims 3 to 12~~, wherein the metal oxide is a mixture of titanium oxide and at least one metal oxide selected from zinc oxide, niobium oxide, tantalum oxide, zirconium oxide, tin oxide and tungsten oxide.

15. (original): The method for producing a metal oxide structure as claimed in claim 14, wherein the content of titanium oxide contained in said metal oxide mixture is 10 mass% or more.

16. (withdrawn): A method for producing a metal oxide dispersion, comprising adding a dispersion medium to the titanium oxide structure claimed in claim 1, the metal oxide structure claimed in claim 2 or a metal oxide structure obtained by the production method claimed in any one of claims 3 to 15, and wet-mixing these by a ball mill, wherein assuming that the total mass of powder particles mixed is w_p (g), the mass of medium is w_m (g), the inner diameter of ball mill container is d (m), the rotation number is n (rpm) and the mixing time is t (minute), the energy constant k_2 at the wet mixing is represented by the following relationship:

$$k_2 = w_m/w_p \times d \times n \times t$$

and the energy constant k_1 at the dry mixing satisfy the following relationship:

$$k_2 \geq k_1.$$

17. to 22. (canceled).

23. (currently amended): A method for producing a dye sensitized solar cell, comprising including the metal oxide structure obtained by the production thereof claimed in claim 3 ~~any one of claims 3 to 15 as a dye sensitized electrode.~~

24. to 32. (canceled).